Fleet Readiness & Logistics

Shape,
Anticipate,
Innovate, and
Lead

Logistics Over-the-Shore (LOTS)

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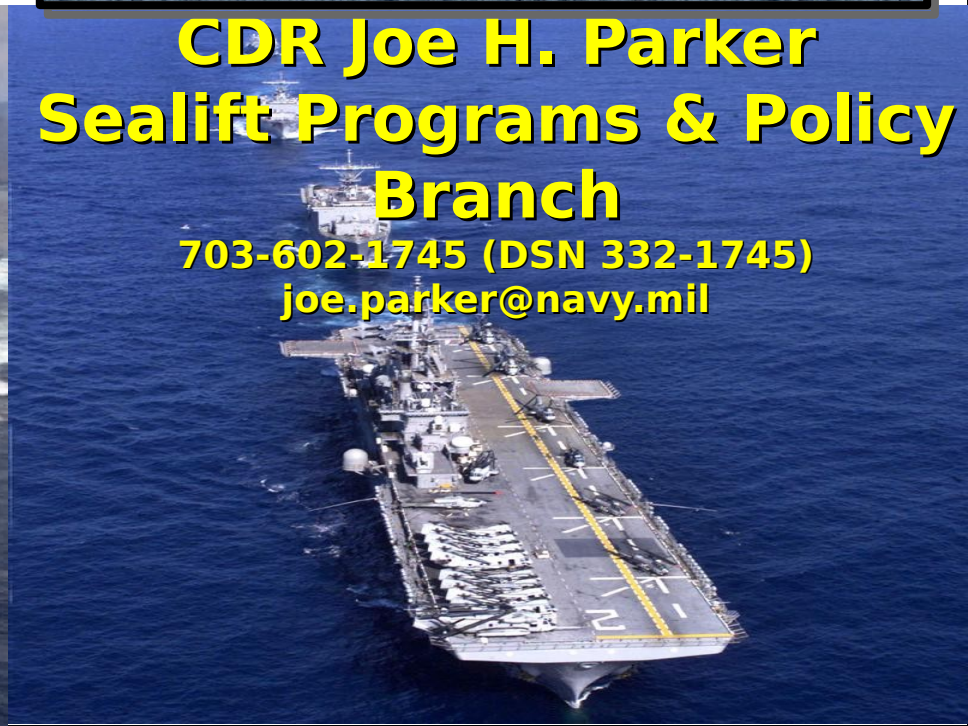


Craft Transformation

Speed and Access in an Expanded Battlespace

Classic Amphibious Operations (~12nm)
UTH Surface Assault (1-5 nm off beach)

OMFTS / STOM (200nm)
TH Air/Surface Assault (25+ nm)

1986

LCVP

LCM-6

LCM-8

LCU

AAV

LCP(L)

AV-8B (Harrier), CH-46E
UH-1, AH-1W Cobra, CH-

2002

LCAC

LCU

AAV

LCP(L)

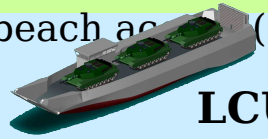
AV-8B (Harrier), CH-46E
UH-1, AH-1W Cobra, CH-53E

2015

LCAC (SLEP)

HLCAC
AAV

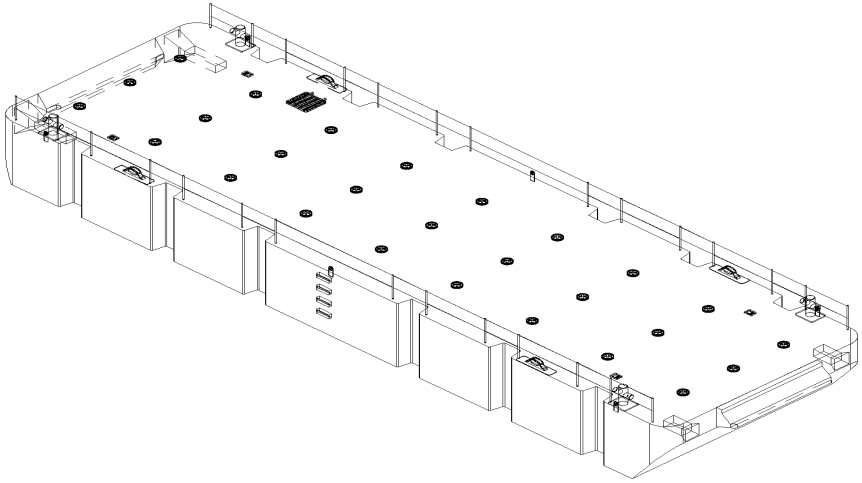
Unconstrained
by tide
(70%

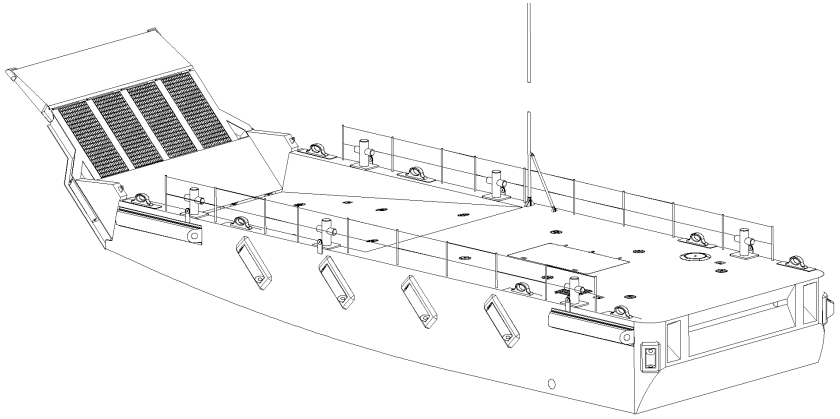

LCU(R)

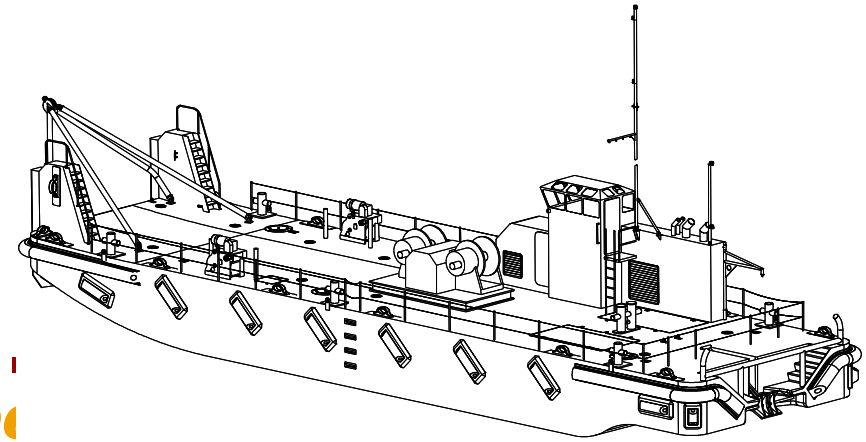
Assault support, Lift, NEO, HA,
AAAV salvage, and Indep. Ops
(1,000 nm)

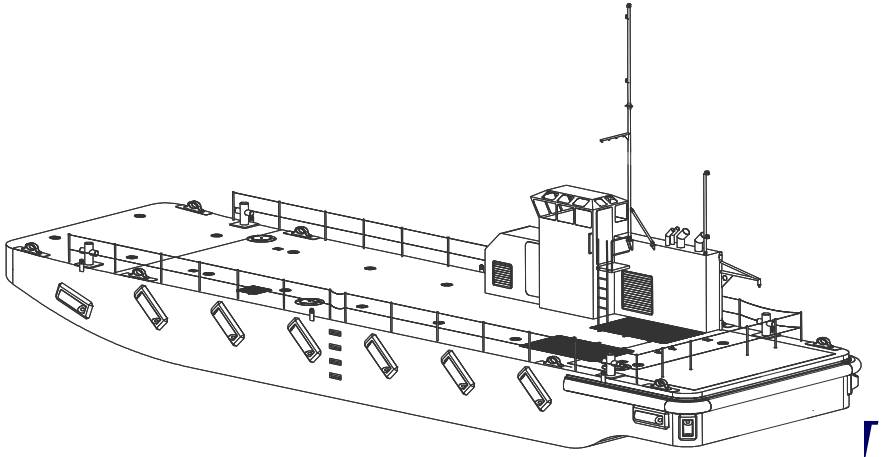
MV-22 Osprey, JSF, UH-1Y,
AH-1Z Cobra, CH-53E, MH-

Improved Navy Lighterage System









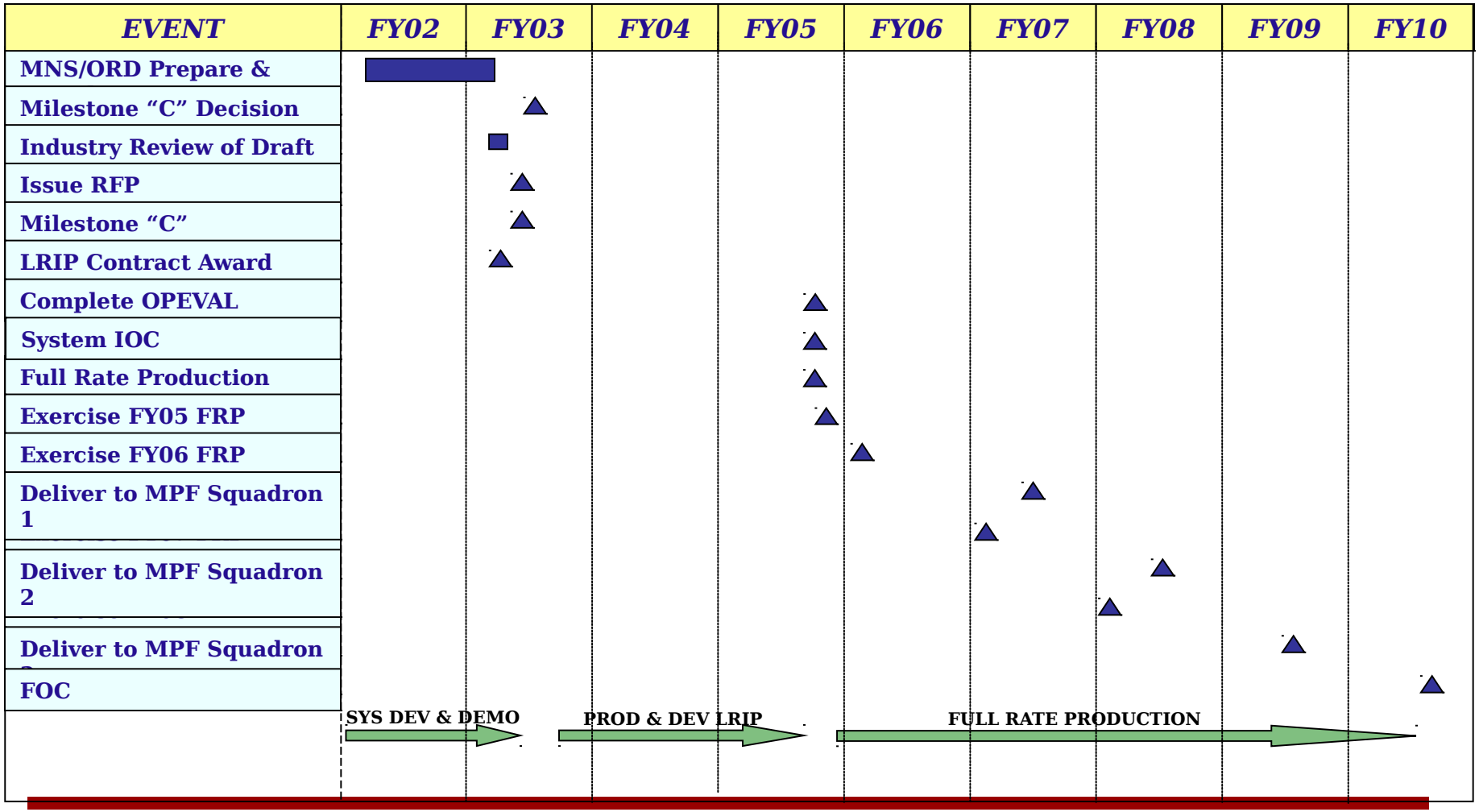
Program Description

- Develop and deploy improved lighterage
  - offload vehicles and cargo containers ashore
- Powered and non-powered floating barges that can be assembled into the following platforms:
  - **Roll-On/Roll-Off Discharge Facility (RRDF)**
  - **Causeway Ferry (CF)**
  - **Warping Tug (WT)**
  - **Floating Causeway (FC)**
- Use commercial tugboat and barge ferry technology, as practical

Key Performance Parameters

KPP	Objective	Threshold
Ready to Operate		
WT	1 hr	1.5 hr
RRDF	24 hr	36 hr
CF	2 hr	3 hr
FC	36 hr	48 hr
Speed		
WT	10 knots	8 knots
CF	10 knots	8 knots
Interfaces		
WT	Extract a fully loaded CF from beach in 20 min	Extract a fully loaded CF from beach in 30 min
CF	Beach and extract fully loaded in MSI:11 on a beach gradient of 1:100	Beach and extract fully loaded in MSI:9 on a beach gradient of 1:50

INLS ACQUISITION SCHEDULE



Today's MPF

- 16 Maritime Pre-Positioning Ships
  - 3 squadrons
  - Most Leased/converted in mid-1980s
  - 3 MPF (Enhanced) ships converted 2000 – 2003
- Lease buyout programmed in 2006

MPF Transformation

3.0 MPF
Marine Expeditionary Brigades
Pre-Positioning/Surge

- 3 MPS Squadrons
  - Pre-positioned equipment and sustainment
  - Reduces force closure times
    - Large scale contingencies
    - Major combat operations
- Surge hospital & aviation maintenance when needed
- Limited interoperability with ARG/ATF within a sea base

- Civilian crews
- Commercial construction
- Cheap kill
- Fly-in/assembly ashore
- Offload inport or in-stream

3.0 MPF(Future)
Marine Expeditionary Brigades
Positioning/Surge

- 3 MPS(F) Squadrons
  - Pre-positioned equipment and sustainment
  - Support to ESG/CSG, as required
  - At-sea arrival and assembly
    - Large scale contingencies
    - Major combat operations
  - Naval interoperability (ESF)
  - Selective offload
  - Naval/Joint vs. Navy sustainment
  - Reconstitution and

- Civilian crews w/ MILDET
- Survivability
- Sea based operational and logistics platforms

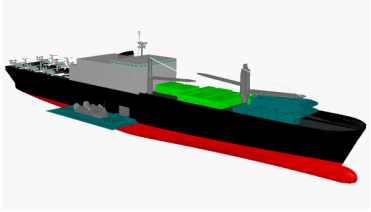
MPF (F)

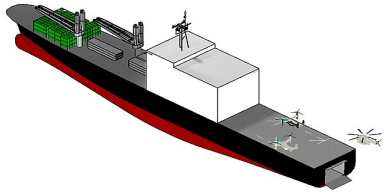
Key Mission Capabilities

- Force Closure – assembly at sea/enroute
- ATF Interoperability
  - LCAC/LCU interface
  - RW platform
  - UNREP capable
  - Selective offload
  - C4I
- Sustainment
- Other:
  - **Medical**
  - **Joint C2**
  - **DOD/Joint Interface/Missions**

Naval & Joint Logistics

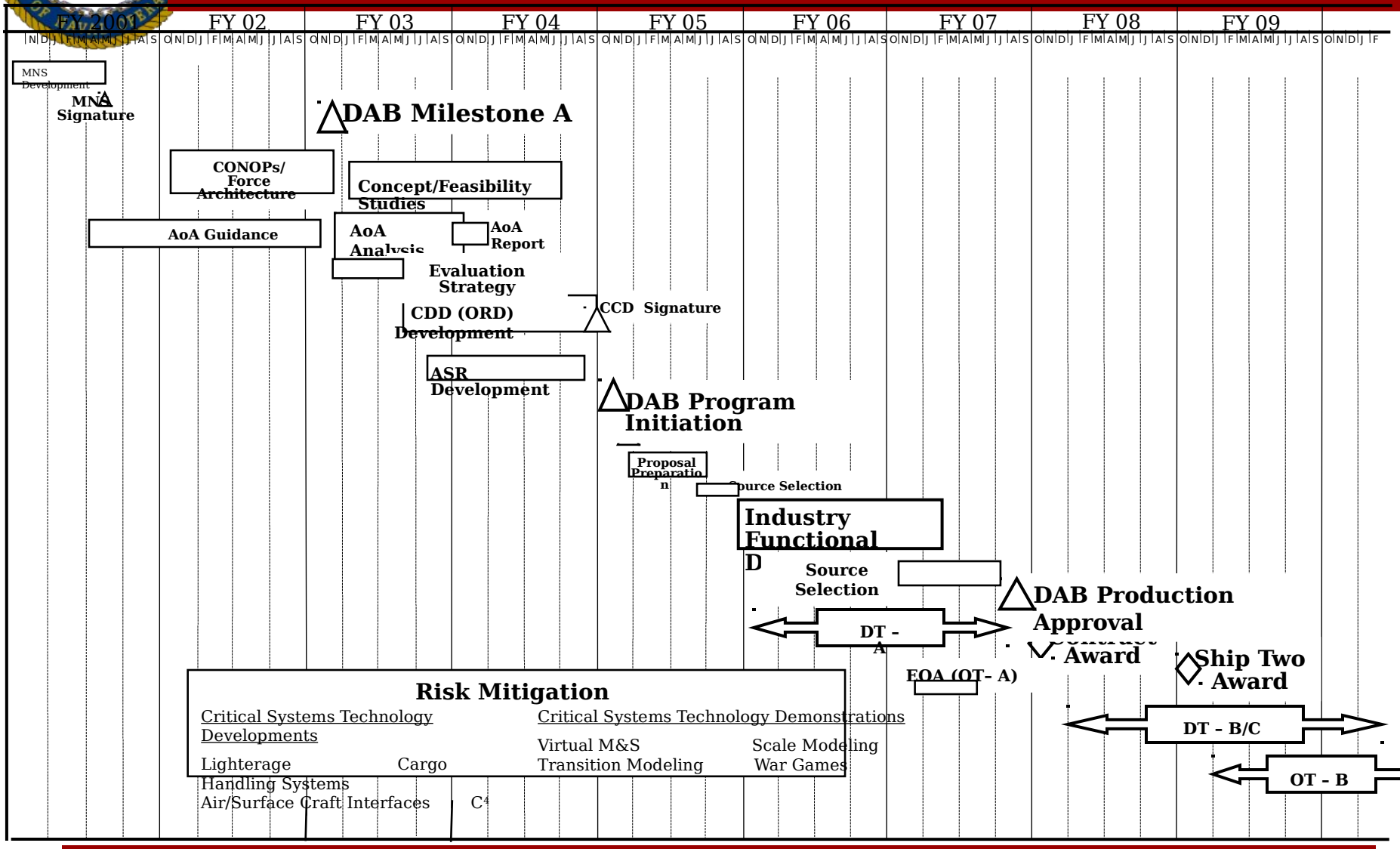
- Seabased logistics
- Cargo transshipment capability
- Potential significant personnel & aviation basing
- Open ocean air and surface craft interface





AoA Focus: Support MEB Force Closure & Sustainmen

MPF(F) Program Approach



CNA Analyses Completed 1996-2002

- MPF(F) Mission Area Analysis
- MPF(F) Surface Lift Analysis
- MPF Lighterage Transition
- MPF(F) Air and Surface Interface
- U.S. Shipbuilding Capacity Implications
- Marine Aviation Requirements
- MPF(F) Utility in a Station Ship Role
- LHA(R) AoA
- DON LIFT II Update
- JCC(X) AoA

MPF(F) AoA Schedule

Task	Proposed Initial review date	Proposed final document date
Prepare for AoA	N/A	N/A
Provide detailed study plan for AoA	Jan ’03	Feb ‘03
Develop and analyze alternatives IAW study plan	Oct ’03	Jan ‘04
Organize formal oversight groups and conduct briefings	Jan ’03	Jan ‘04
Prepare final study report	Oct ‘03	Jan ‘04

Consideration of Technology Issues

- MPF(F) Required Technologies:
  - **Open-ocean air and surface craft interface**
    - **OTH surface lighters (including TSV)**
    - **Launching and loading**
  - **Selective retrieval of cargo**
  - **CLF Interoperability**
  - **Skin-to-skin replenishment**
  - **Connectors: MV22, AAV & surface(TBD)**
  - **Joint Interoperability**
- Planning for technology refresh
  - **Open systems**
  - **Modularity**

Strategic Sealift R&D Efforts

High Speed Sealift (HSS)

- Status
  - HSS Tech Development Plan (provided by NSWC-CD)
  - Data collection on HSV-X1 and X2 craft
  - Developing HSS technology base, analytical tools and design criteria
- Deliverables and Future Actions
  - Provide TRIMARAN model test report
  - Leverage model/full scale tests to HSS applications
  - Develop predictive capability and criteria for integrated hull/propulsor design methodology.

Strategic Sealift R&D Efforts

Seabasing Systems

- Status
  - Data collection for COTS applications
  - Open communication with DOD and commercial sector for improving material handling practices and systems
  - Evaluating tools to enable effective modeling/simulations
  - Supporting HSV/T-ACS interface
- Deliverables and Future Actions
  - Vehicle storage/handling report
  - CAEMS/ICODES conceptual general arrangements
  - Fully functional horizontal carousel prototype (200lb per tray)
  - Model flow of material through seabase
  - Report on options for reconfigurable high-capacity berthing
  - Report on commercial skin-to-skin practices and proposed system design and demonstration

Strategic Sealift R&D Efforts

Advanced Lighter Simulator/Trainer

- Status
  - Installed and operating at ACB-2.
  - In process of transitioning from R&D to operational system
  - Final systems groom progressing
- Deliverables and Future Actions
  - System hardware, documentation and training scenarios
  - System turnover Mar ‘03

Strategic Sealift R&D Efforts

Ship/Lighter/Platform Interface

- Status
  - Prototype Deep Draft Composite Fender (DDCF) ship set (3 fenders) fabricated
    - Tested with HSV JV-X1 and INLS prototypes
  - Mods made to T-ACS demo ship
  - INLS spanning ramp design progressing
- Deliverables and Future Actions
  - DDCF Full scale test and evaluation on FLICKERTAIL STATE (Chetham Annex)
  - Evaluate application of DDCF to other ship classes and Seabasing operations
  - INLS spanning ramp transitions to INLS program

Strategic Sealift R&D Efforts

JLOTS Planning Tools

- Status
  - Hosted multi-agency JLOTS course
    - reviewed CD-ROM curriculum
    - EWTGPAC recommendatins provided
  - Converting to “electronic classroom”
  - Adapting Coastal Integrated Through-put Model (CITM) model
- Deliverables and Future Actions
  - Convert CITM JLOTS modeling to Extend software
  - Considering extending CITM simulation model to enhance user functions and to include movement of cargo across beach

Strategic Sealift R&D Efforts

Sea-based Wave Attenuation Technology (SWAT)

- Status
  - USACE-ERDC sub-scale model test completed (1997)
  - Performed barge tow test using USACE's XMO2 RIB (Dec 02)
  - Ship test proposal being developed
- Deliverables and Future Actions
  - Barge tow test report
  - Ship test plan
  - Ship test and report

Strategic Sealift R&D Efforts

Ship Roll Mitigation System

- Status
  - Ship Roll Stimulation System (SRSS) study complete
  - Successful SRSS demo during SS3 Crane ATD
  - Control system alogrithms completed for 1/8 scale SRSS model
- Deliverables and Future Actions
  - 1/8-scale test report
  - Revise T-ACS Trim & Stability booklet
  - Ship test report
  - Fleet exercise report

Strategic Sealift R&D Efforts

Stereovision for Crane Operators

- Status
  - Prototype installed on FLICKERTAIL STATE
  - Training, testing & demo completed with military & civilian operators
  - Installation underway on CHAPGRU training cranes
- Deliverables and Future Actions
  - Complete training system installation
  - Continue long term operator evaluation
  - Investigate alternative/improved display
  - Finalize design package

Strategic Sealift R&D Efforts

Pendulation Control System

- Status
  - Prototype installed on FLICKERTAIL STATE
  - Successful ATD Demo @ NWS Yorktown, Cheatham Annex, for single crane operations
    - Demo conducted with up to ~1.5 degree ship roll
  - Awaiting ABS aproval for PCS operations up to crane SWL
- Deliverables and Future Actions
  - System performance spedcifications
  - Prototype construction and full scale test
  - Twin-mode system demo
  - Quad lift demo
  - Acquisition package development

Strategic Sealift R&D Efforts

Integrated Rider Block Tagline System (IRBTS)

- Status
  - IRBTS integrated in crane control systems
    - Prototype on T-ACS 5, FLICKERTAIL State
    - Installed on T-ACS 1-3
  - ABS approved design spec & installation on T-AKR 303
  - Encoder & hardware control algorithm installed on T-AKR 303 (USNS MENDONCA)
  - Installation completed
- Deliverables and Future Actions
  - Installation test report
  - O&M manual
  - ABS approval of design specification
  - Training package
  - At-Sea demonstration report

Strategic Sealift R&D Efforts

Omni-Directional Vehicle

- Status
  - Dockside demo on CAPE JOHNSON w/ empty missile canister
  - Land-based demo with TEU through maze of containers, to replicate possible MPF(F) arrangement
- Deliverables and Future Actions
  - PHD evaluation report
  - Omni Directional Side Lift Forklift (ODSLF) design specification
  - ODSLF evaluation report
  - Omni Directional Container Mover (ODCM) concept feasibility

Strategic Sealift R&D Efforts

RO/RO Ramp to Platform Interface

- Status
  - 1st round eval of solicited proposals complete
    - Neither passive motion compensator concepts deemed suitable
  - Gov't in-house assessment progressing
- Deliverables and Future Actions
  - NPS concept evaluation report

Strategic Sealift R&D Efforts

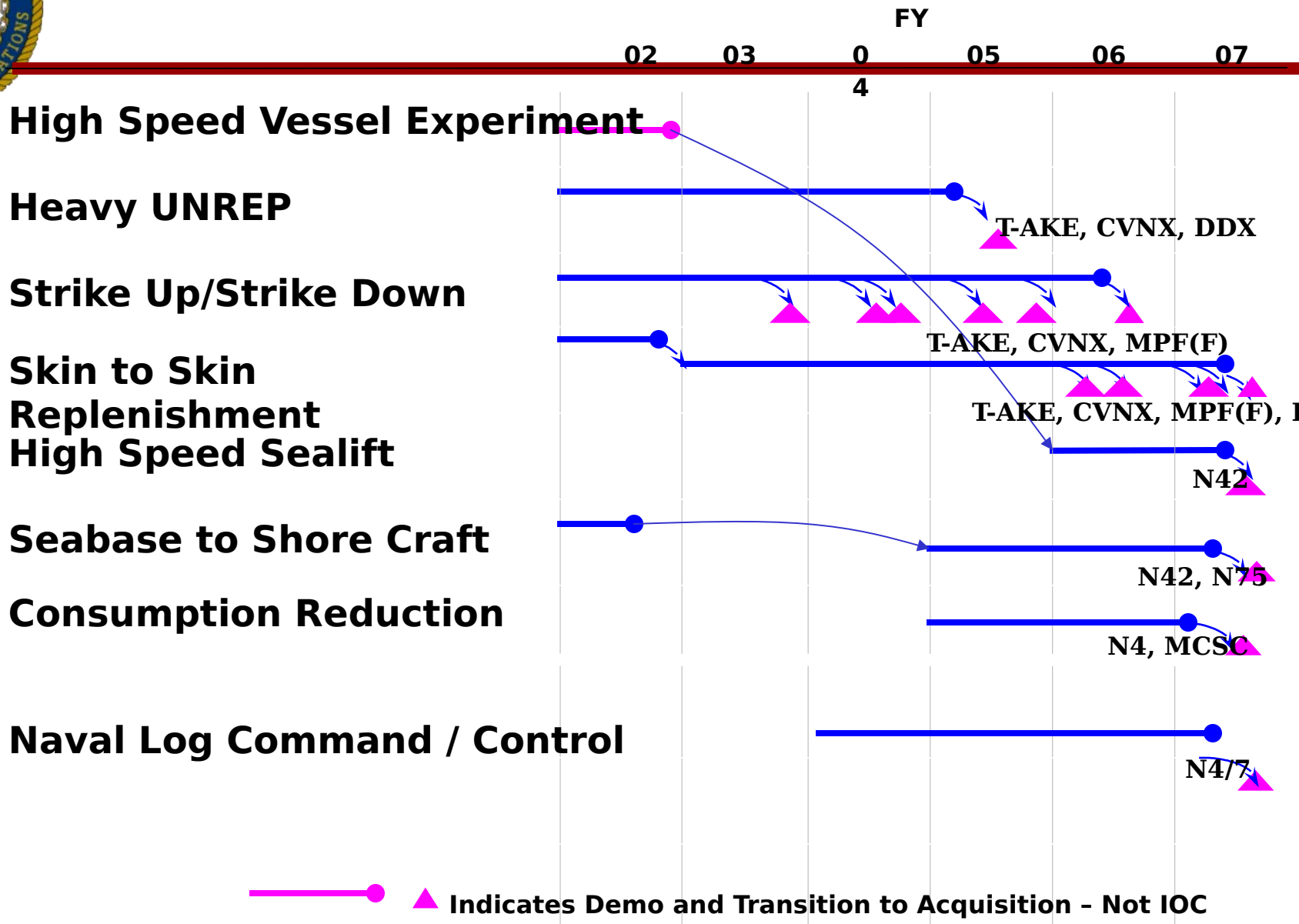
UNREP Rigging Winch

- Status
  - Developed concept that reduces manning from 25 to 3 line handlers
  - Previous testing showed feasibility, but also demonstrated a need for further system and equipment development
    - Winch power may be insufficient
- Deliverables and Future Actions
  - Complete prototype development/design/fabrication
  - Conduct land-based testing
  - Conduct at-sea testing
  - Provide report

ExLog Timelines and Transition Points

Distribution

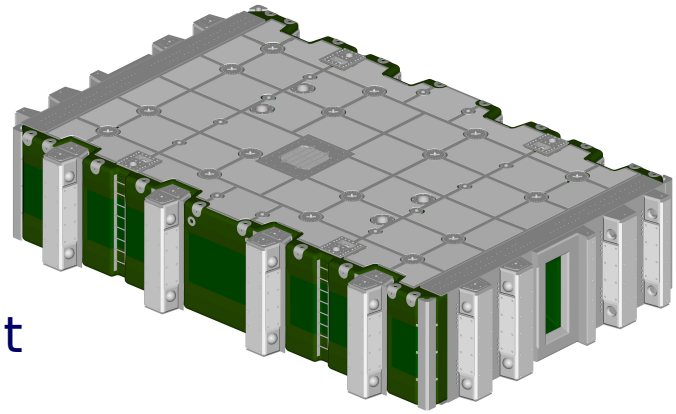
Log C2



Questions?

R&D COMPOSITE MODULE

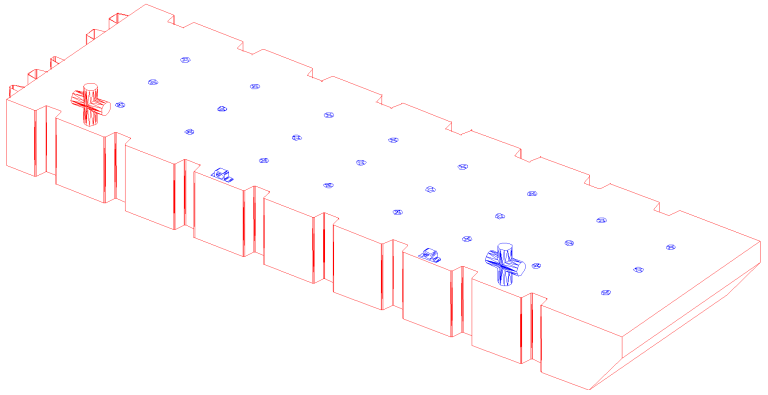
- Detailed design by NSWC- Carderock
- 40’Lx24’Wx8’H - rigid connectors at both ends
- ½ Length
- Fabrication by Northup/Grumman Ingalls Shipbuilding, Gulfport, MS via ONR contract
- Delivered to NAB Little Creek



	40’ Design	80’ Design (extrapolated values)
Module weight	103,240 lbs (45.5 LT)	165,000 lbs (73.7 LT)
Light Draft	23”	17”
Max load with 4 ft freeboard	102,000 lbs (54.0 LT)	300,000 lbs (134 LT)

R&D STEEL COMBINATION MODULE

- **Designed by US Coast Guard Yard, Curtis Bay, MD**
- **80’ L x 24’ W x 8’ H Combination Module**
- **Design validation by ABS**
- **Fabrication by USCG Yard**
- **Completed June 02**



	80’ Steel module
Module weight	190,800 lbs (85.2 LT)
Light Draft	20”
Max load with 4 ft freeboard	274,200 lbs (122.4 LT)

MODIFIED WARPING TUGS

ExLog General Description and Enabling Capabilities

- **General Description: Expeditionary Maneuver Warfare and SS3/5 Naval Logistics with Effective and Efficient Movement of Equipment, Supplies and Personnel Between Sea Based Platforms and Into/Out of Operating Areas.**
- **Enabling Capabilities:**
  - **Distribution:** Develop a Naval Expeditionary Family of Surface Logistics Delivery Components to Enable Long Term Sustainment at the Seabase and Forward From the Seabase.
  - **Command and Control:** Logistics Component C2 for Naval Force Deployment Planning and Execution, Creating Real Time Logistics Situational Awareness and Decision Support.

Expeditionary Logistics

EC-1: Distribution Product Lines:

High Speed Vessel Experiment - FNC participated in joint HSV experimentation in FY02 and contribute data, information and analysis to OPNAV for requirements consideration.

-Joint Venture X2 experimentation scheduled for FY03

Heavy Unrep - Perform highline tensioned replenishment of 12,000 pounds in sea state 5 through new wire rope materials, sophisticated load control, and human factor modeling to increase onboard safety and allow 300' ship separation.

- Restructuring in FY03 to raise S&T content

Strike Up/Strike Down - Automatically strike down/up, and track, cargo loads, automatically retrieve desired materials less than 20 minutes from request.

- Address CVNX and MPF(F) requirements. Investment

Expeditionary Logistics

EC-1: Distribution **Product Lines** (Continued):

Skin to Skin Replenishment -Alongside, skin to skin material transfer. Advance the Naval platform ability to interface with commercial shipping platforms at sea. Increase the Naval platform interface capability in the JLOTS environment.

Seabase to Shore Craft -Rapid delivery from the seabase in sea state 3 and higher to forces ashore at an unimproved site at distances up to 40 miles.

High Speed Sealift - Daily delivery from the ISB to the Seabase in sea state 5 and below providing custom orders within 24 hours.

Consumption Reduction - Reducing the logistics burden in focus areas of bulk liquids

Expeditionary Logistics

EC-2: Logistics Command and Control Product Lines:

Logistics Wargame Simulator Logistics software module added to the JWARS and NSS wargaming platforms.

Naval Logistics Command and Control
Logistics software decision and planning support tools for the ATF and Battlegroups.

Ashore Logistics Command and Control
Software support to tactical force deployment planning and execution. Sensor feed architecture for improved situational awareness in the areas of